



NASA
Acquisition Pollution Prevention (AP2)
Program

KSC Environmental Council Meeting

October 1, 2004

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Medical and Environmental Division

C3P Joint Oversight Group (JOG) Meeting

- NASA KSC is the Principal Center for acquisition pollution prevention (AP2). The NASA AP2 Program is the NASA liaison to the Portuguese Center for Pollution Prevention (C3P Program
- **Meeting:** September 21, 2004 at KSC Beach House (3rd C3P JOG meeting)
- **Objective:** State-of-the-program business meeting. Plan for future activities.
- **Results and Outcome:**
 - Attended by all C3P core members (ISQ, INEGI, ITB), HQ NASA, NASA AP2, and NASA CD
 - Concluded with VIP tour of KSC
 - Report to be submitted to Portuguese Minister of Environment & U.S. Ambassador to Portugal.



September 18, 2002 signing ceremony between U.S. Ambassador to Portugal (on behalf of NASA) and the Portuguese Ministry of Urban Affairs, Spatial Planning and the Environment



Medical and Environmental Division

International P2 Workshop

- **Date:** September 22-23, 2004 (2nd NASA AP2 workshop)
- **Profile of Workshop Attendees:**
 - 114 total attendees
 - ◆ 40 local + 74 visiting
 - ◆ 30 speakers
 - ◆ 43 individuals going on one or more KSC/CCAFS technology tours
 - Countries represented: United States, Portugal (10), United Kingdom (2), Turkey (1), Canada (1), The Netherlands (1)
 - Organizations represented (examples):

| | |
|-----------------------|--------------------------------|
| ◆ ASRC Aerospace | ◆ NASA MSFC |
| ◆ ATK Thiokol | ◆ Northrop Grumman Corporation |
| ◆ Boeing | ◆ Rockwell Collins |
| ◆ Dynamac | ◆ SGS |
| ◆ Florida DEP | ◆ TAP Air Portugal |
| ◆ Hamilton Sundstrand | ◆ U.S. Air Force |
| ◆ Harris Corporation | ◆ United Space Alliance |
| ◆ ISQ (Portugal) | ◆ U.S. Army Missile Command |
| ◆ NASA KSC | ◆ U.S. Coast Guard |
| | ◆ U.S. Navy |



Meeting the Workshop Objectives

| Objective | Example Outcome |
|--|---|
| 1. Opportunity for our current project teams to get together for a face to face technical exchange | <ul style="list-style-type: none">● Chromium/cadmium-free surface treatment<ul style="list-style-type: none">– Adjunct project meeting with TAP Air Portugal on chrome-free pretreatment<ul style="list-style-type: none">◆ Agreed to apply a nonchromate pretreatment (validated through the U.S. DoD) to TAP Air aircraft.◆ Agreed to apply a nonchromate coating system (primer-topcoat) to TAP Air aircraft● Lead-free electronics<ul style="list-style-type: none">– Adjunct LFS project team meeting & tour at Harris Corp. (Melbourne) on Tue., Sep. 21<ul style="list-style-type: none">◆ Hamilton Sundstrand and Northrop Grumman newly added team members● Low/no-VOC and HAP coatings & depainting<ul style="list-style-type: none">– AFSPC, Hill AFB, Patrick AFB, & NASA Shuttle meeting to plan a possible nonchromate, low-VOC coatings system project– Air Force Space Command (AFSPC) meeting was cancelled their adjunct meeting at last minute |



Meeting the Workshop Objectives

| Objective | Example Outcome |
|--|---|
| 2. Forum to showcase improved technologies and share lessons learned | <ul style="list-style-type: none">● Chromium/cadmium-free surface treatment<ul style="list-style-type: none">– Presentations on nonchromate pretreatment implementation successes● Lead-free electronics<ul style="list-style-type: none">– Entire day's worth of LFS presentations on Sep. 22, including report-out of interim results from NASA-DoD Lead-Free Solder testing project● Low/no-VOC and HAP coatings & depainting<ul style="list-style-type: none">– Presentation on novel technologies, such as portable laser coating removal (of interest to NASA)– Presentation and demonstration of metalizing at Complex 18, CCAFS– Tour of Hydrolase stripping of SRBs (USA, Hangar AF)● Reducing hazardous air pollutants/ ozone depleting substances<ul style="list-style-type: none">– Presentations of non-ODS cleaning, and tour of KSC cleaning shop (Wiltech) |



Safety, Health, and Environmental Division

Meeting the Workshop Objectives

| Objective | Example Outcome |
|-------------------------------------|--|
| 3. Identify new joint opportunities | <ul style="list-style-type: none">• Garnered interest from KSC (JBOSC), Wallops, & C3P on a project opportunity to evaluate membrane technology for removing VOCs from process air streams• European Space Agency indicated interest in an information exchange with NASA AP2 on nonchrome pretreatments• Fostering a lead-free solder test information exchange between NASA (JG-PP LFS project) and Hereaus (an international solder manufacturer)• Received 3-page proposal from BAE Systems (NY) to consider jointly develop a draft standard to show parts manufacturers how to mark parts lead-free in a common manner• LFS stakeholder interest in idea of a LFS summit with a major Navy electronics program in 2005• Received offers of tentative and confirmed in-kind contributions for follow-on LFS project.• Interest from AFSPC, Hill AFB, Patrick AFB, and NASA in a possible coatings system project. |



Medical and Environmental Division

NASA Portable Laser Coating Removal System Project

Objective: Demonstrate the feasibility of a portable laser system (validated by the DoD under JG-PP) for removing various NASA-specific coatings

Justification: Current methods (hand sanding) laborious and can cause damage. Laser is more selective.

Accomplishments:

- Team formed: NASA KSC (USA, Boeing) and GRC; NASA AP2
- Contingent of technical reps from KSC and GRC viewed demonstration of 3 portable laser systems at Wright-Patterson AFB in August.

Future Plans:

- Determine applications and performance requirements for PLCRS
- Select and optimize a PLCRS for KSC and GRC
- Conduct feasibility trials



Nd: YAG Laser

Courtesy: Quantel SA, France



TEA-CO₂ Laser

Courtesy: SLCR Lasertechnik, Germany



Diode Laser

Courtesy: Laserline, Germany



Medical and Environmental Division

Contact Information

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